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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

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Insect Control
D-6

PROPOSED INSECT CONTROL PROJECTS

for

SPRING OF 1927

in

DISTRICT SIX

January 3, 1927.

A. J. Jaenicke,
Forest Examiner.

GOVERNMENT PRINTING OFFICE 8—6186

Contents

	Page No.
Introductory statement	1
The Sand Creek project.....	2
The Southern Oregon-Northern California pine beetle project.....	5
The Seven Mile project.....	10
The Fort Rock project.....	13

Note: The maps are in the envelope which accompany the report.

INTRODUCTORY STATEMENT

The following four projects are recommended for consideration:-

1. The Sand Creek project in lodgepole on the Crater National Forest in cooperation with the officials of the Crater Lake National Park. An allotment of $3,000 is needed during the present fiscal year to carry out this project. This project and the estimates have the approval of the Bureau of Entomology.

2. The Southern Oregon-Northern California pine beetle control project. An allotment of $1,800 is needed this fiscal year to do yellow pine control work on O and C lands on Area One, in cooperation with the Klamath Forest Protective Association which proposes to spend about $8,000 for the work on the intermingled private lands. This project and the O and C estimates have been approved by the Bureau.

3. The Seven Mile project in yellow pine in the Klamath Lake block of the Crater National Forest. Only national forest timber is involved. For control operations in the spring of 1927, an allotment of $3,000 will be required. The field data for this project were secured late in November, 1926 and therefore no corroborative field examination has been made by the Bureau nor has the project been submitted to it for approval.

4. The Fort Rock project in yellow pine in the Ryan Cabin block of the Deschutes National Forest. Private and national forest timber are included. The project involves cooperation with the Shevlin-Hixon Lumber Company to the extent of about $3,000. The Forest Service share of the project in the spring of 1927 requires $3,000. Field data secured in November, 1926. No corroborative field examination by the Bureau has been made. The data are here presented for the Bureau's consideration for the first time.

The location of these four projects is shown on the two maps which accompany this report.

THE SAND CREEK PROJECT.

Area and Ownership

This lodgepole infestation is located in the Fort Klamath district of the Crater National Forest and in the southeast quarter of the Crater Lake National Park. It is largely confined to Sand Creek drainage. The road which provides for the east entrance to the park from the Dalles-California highway, the so-called Sand Creek entrance, cuts through about two miles of the infestation in national forest lodgepole and several miles of national park lodgepole.

The legal subdivisions included by the national forest portion of the infestation are parts of Secs. 27, 34, and 35 in T. 31 S., R. 7½ E., and parts of Secs. 2 and 3 in T. 32 S., R. 7½ E. Probably 2,000 acres of national forest lodgepole are within this area.

The national park portions of the infestation under consideration is in the form of a lodgepole belt several miles long and ordinarily not more than a mile wide along both sides of the Sand Creek road and the so-called "Rim" road.

The national park and the national forest infestations adjoin and are merely parts of the same general mountain pine beetle attack.

The map accompanying this report shows the relative position of the two infested areas. The colored area inside of the park includes both the controlled and the uncontrolled infestation.

Values to be Protected

The Sand Creek entrance of Crater Lake National Park is one of the two entrances convenient to the Dalles-California highway. It is used by thousands of tourists. With the further improvement of the Dalles-California highway, the Sand Creek entrance will be used by even more

park visitors in the future. The last two miles of the Sand Creek road as it approaches the park entrance from the Dalles-California highway, cuts through an almost pure lodgepole stand inside of the Crater National Forest. The tremendous canyon of Sand Creek is visible at various places from this road and is one of the outstanding scenic assets of Crater Lake National Park. Although the most striking part of this canyon and the pinnacles within it are inside of the park boundary, the national forest portion is not without beauty.

The uninterrupted destruction of the lodgepole in the national forest part of the infestation would be unfortunate from at least three standpoints, namely:-

1. Impairment of the beauty of that part of Sand Creek canyon actually within the Crater National Forest.

2. Jeopardy of the results of the 1925 and 1926 control work in the park portion of the canyon adjoining the national forest area because of possible migration of beetles from the national forest area into the park area already cleaned.

3. Impossibility of carrying out the 1927 control program on the park area successfully unless similar work is done on adjoining national forest area.

The Crater Lake National Park has spent approximately a total of $7,000 in 1925 and 1926 to protect the lodgepole from further damage. Unless control work is done by the Forest Service in the adjoining national forest area in the spring of 1927, the success of the control work already done will be endangered and it will not be possible for the Park Service to carry out its 1927 control program with much assurance of success.

Present and Past Infestation

The national forest portion of the infestation has been in a more or less epidemic status for three or four years, and already from one-fourth to one-third of the lodgepole

stand has been killed. The epidemic shows no evidence of abatement in severity, in fact the present infested trees (1926 attack) are considerably greater in number than those killed by the 1925 attack.

The intensity of the 1925 attack is indicated by the fact that within the park boundaries, 1,800 trees were treated on 440 acres in 1926.

It is estimated that there are 5,000 infested lodgepoles in the national forest portion of the infestation under consideration, and at least 3,000 infested lodgepoles in the national park area to be covered by the spring 1927 control operations.

Estimated Cost

The National Park Service has $2,000 available for its share of the project in the spring of 1927.

It is estimated that $3,000 will be needed to carry on the Forest Service share of the project. This estimate is based on the supposition that 5,000 trees will be treated, either by sun-curing or burning, at a cost of sixty cents per tree.

J. E. Patterson of the Bureau of Entomology made an examination of this situation in October, 1926 and Jaenicke made a field study in November, 1926. There is general agreement between Patterson and Jaenicke's cost estimates. However, inasmuch as the infested lodgepoles for the most part did not show any discolored foliage and the field studies were hampered by bad weather, the estimates are necessarily rough. However, $3,000 is considered to be ample for the Forest Service share of the project.

Entomological Considerations

The national park and national forest areas in this infestation are merely portions of one infestation. It is for this reason that adequate beetle protection of the park area cannot be given without concurrent control work on the national forest area. In fact, Patterson has recommended

that no further control work be carried on in the park area unless similar work on an adequate scale is done on the national forest infestation.

The mountain pine beetle (Dendroctonus monticolae) is responsible for nearly all of the losses.

Administrative Considerations

Since the Park Service share of this project will be conducted under the immediate direction of the Bureau of Entomology, it is recommended that such cooperative action be considered in carrying out the Forest Service part of the work as will make possible the best use of the assistance of the Bureau and the use of such experienced foremen and laborers as the Park Service can release for the Forest Service work.

THE SOUTHERN OREGON-NORTHERN CALIFORNIA

PINE BEETLE CONTROL PROJECT

Explanatory Statement

In earlier reports on this project, it has been brought out that only when adequate control work is contemplated on intermingled private lands can national forest and O and C timber within the boundaries of this project be justifiably recommended for protection against further beetle depredations. This is due to the close inter-mixture of private and federal timber in nearly all parts of the project in which the Forest Service has administrative responsibilities. In Area Three, for example, portions of the Fremont National Forest are badly in need of control work but not until the timber owners make definite beetle protection plans, can the Forest Service lay similar plans for the protection of the national forest timber. It is likely that the Klamath Forest Protective Association will be ready to resume extensive control operations in Area Three in the fall of 1927. The exact location and extent of such work will depend on the recommendations of the Bureau and upon the financial resources of the Klamath Forest Protective Association and the Forest Service.

The beetle control plans of the Klamath Forest Protective Association, as recently announced by Mr. J. F. Kimball, its manager, contemplate the concentration of control operations of the Association in Area One in the spring of 1927. Intermingled in the units to be covered is O and C yellow pine. No national forest timber is involved; in fact, the nearest national forest timber is three miles distant.

Area and Ownership

Parts of two of the so-called entomological units of Area One are included in the plans, namely Johnson

Prairie and Lower Jenny Creek. The remaining portions of the units do not now require control work and they have therefore been omitted by the Bureau of Entomology in the present control plans. The areas to be worked are from 20 to 30 miles west of Klamath Falls. Their location is shown by the orange shading on the accompanying Crater National Forest map.

The acreage and ownership situation is as follows:-

Johnson Prairie Unit

Private acreage	6,050
O and C acreage	450
Total	6,500 acres.

Lower Jenny Creek Unit

Private acreage	4,000
O and C acreage	1,800
Total	5,800 acres.

Nearly all of the timber is owned by members of the Klamath Forest Protective Association. The timber on the lands of non-members of the Association will be treated by the Association, either through direct arrangement with the owners or by invoking the compulsory forest insect control law.

Values to be Protected

It is estimated that on the 2,250 acres of O and C lands to be treated, there is a stand of at least 18,000 M. board feet of yellow pine. According to Mr. E. P. Rand of the General Land Office in Portland, Oregon, who has had a large share in the appraisal of the O and C timber, the yellow pine in question is from fair to good in quality and is worth at least $4.00 per M. board feet. On this basis, the O and C yellow pine included in the proposed control work is worth $72,000.

No estimates are available for the yellow pine volume on the 10,050 acres of private lands. Generally speaking, the yellow pine is of better quality and in heavier stands than the O and C timber. No recent timber transfers have been made but it is understood that the private pine held at an average of $5.00 per M. board feet by the larger owners. It is certain that this yellow pine will average 15 M. board feet per acre. Using a $5.00 valuation for the timber and an average stand of 15 M. board feet per acre as a basis, the timber owners have about 150,000 M. board feet of yellow pine worth $750,000, included in the spring, 1927 control plans.

Present and Past Infestation

During the 10-year period 1917-1926 inclusive, the western pine beetle has killed at least ten per cent of the yellow pine stand. In 1925 and 1926, the beetle activity has greatly increased over the preceding years and at present there is no evidence to support an assumption that it will decline from natural causes without the aid of control operations.

The Bureau of Entomology has made annual beetle surveys of Johnson Prairie and Lower Jenny Creek units, together with other units in Area One since 1921, and consequently there is detailed information available on past and present beetle losses and their distribution in the two units. It is on the basis of this information that the Bureau of Entomology is recommending the control work and that the Association feels the immediate need of these beetle protection measures. The beetle situation in the portions of these two units not included in the present control program does not, in the opinion of the Bureau, require attention now.

Estimated Cost

Mr. J. E. Patterson of the Bureau of Entomology estimates that there are 625 infested yellow pines to be treated on the O and C lands included in the proposed work and that these trees can be treated for $2.80 per tree.

This will make an O and C cost of $1820. By units, this cost is divided as follows:-

Johnson Prairie

Infested trees	125
Cost per tree	$2.80
Total cost	$350.

Lower Jenny Creek

Infested trees	525
Cost per tree	$2.80
Total cost	$1470

Mr. Patterson has submitted no definite cost estimates for the control work on the private lands. If it is assumed that the overwintering infestation is as great per acre on private timber as in the O and C timber, the spring 1927 control work will cost the Association about as follows:-

Johnson Prairie	-	$4,700.
Lower Jenny Creek	-	2,220
Total private cost	-	$7,920

Entomological Considerations

The proposed work carries the approval of the Bureau of Entomology. The Bureau's recommendations are based on detailed surveys and an intimate knowledge of the beetle situation. However, inasmuch as there is ordinarily some scorching of standing timber in control work as carried on by the Klamath Forest Protective Association, an opinion is needed from the Bureau as to whether this scorching jeopardizes the effectiveness of the control operations. Should this scorching serve as an attraction to the beetles, the O and C lands are so closely intermingled with the private lands that the O and C work would be affected by this attraction.

Administrative Considerations

The control work on the O and C lands can either be done by the Klamath Forest Protective Association or by the

Forest Service. Since the private lands in this control project are over 80 per cent of the total and since the O and C lands are badly scattered, the Association is the logical agency to do the control work. Should the Assodation do this work, an advance understanding will be needed as to the Forest Service requirements in the way of protection of reproduction and timber against scorching by fire on O and C lands.

THE SEVEN MILE PROJECT

Area and Ownership

The infested yellow pine within this area is located in the extreme northern portion of the Klamath Lake block of the Crater National Forest. Approximately 3,000 acres are included in the heaviest part of the epidemic. The general location is shown colored in green and marked "B" on the map of the Crater National Forest which accompanies this report.

No privately owned timber is included in the infested area and therefore it is administratively and financially entirely a Forest Service project.

The infestation is located three miles southwest of the Anna Creek Lumber Company's sale area. It is situated six miles west of the 17,000 acre tract of yellow pine of the Yawkey Lumber Company which was thoroughly covered by beetle control operations in 1925 and 1926 under the direction of the Bureau of Entomology and the Klamath Forest Protective Association.

Values to be Protected

The infested area proper contains about 3,000 acres. There is some scattered infestation of more than normal severity on probably an additional 1,000 acres contiguous to the north and south boundaries. A total of 4,000 acres may therefore have to be included in the control work. On this area there is an average stand of yellow pine of at least 13 M. per acre, or a total stand of 52,000 M. board feet. This pine is of good quality, close to good roads and in a region in which pine stumpage is in growing demand. It has a market value of at least $4.00 per M. board feet. This gives a total value of over $200,000 for the yellow pine stand now suffering from epidemic activity of the western pine beetle.

In addition to the protection of this body of timber from further beetle losses, there is a considerable stand of national forest timber immediately to the north and northeast, now fairly free of beetle activity, which needs

protection from the spread of this epidemic. It includes the Anna Creek Lumber Company's sale area. It is probable that this body of yellow pine contains at least 40,000 M. board feet with a conservative market value of not much less than $4.00 per M. board feet.

Directly adjoining the Anna Creek sale area on the east, is part of the Yawkey tract. About $15,000 were spent in 1925 and 1926, to free this splendid body of yellow pine from a beetle epidemic. At the present time, this tract is as free of beetles as it is possible to make it by existing control methods. It is the plan of the owners to cut and burn such infested trees as may appear from time to time in the future. This timber stand has been estimated to contain from 200,000 to 300,000 M. board feet of yellow pine of a quality which considerably excels that of the adjoining national forest pine.

Should the epidemic infestation, now restricted to 4,000 acres, spread northward and eastward, the Yawkey timber would be endangered.

Present and Past Infestation

On the entire 4,000 acre area, the 1926 beetle loss is estimated at 900 M. board feet or about 150 M. board feet per section. This is equivalent to over 1 2/3 per cent of the total yellow pine stand. The 1925 loss amounted to not more than 100 M. board feet per section. Prior to 1925, the beetle activity was hardly more than normal in severity. The infested trees average at least one thousand board feet each and occur as scattered trees and small groups. There is no evidence of the possibility of any immediate decline due to natural agencies.

Estimated Cost

On account of the small size of this project and the consequent greater cost of treating the timber, it is not thought safe to figure on less than $4.00 per M. board feet for treating the infested timber. Yellow pine reproduction is so abundant over much of the area that special fire precautions will be necessary to prevent damage to the young growth. Such protection costs money.

The overwintering infestation which will have to be treated in the spring of 1927 is estimated to have a volume of 750 M. board feet or slightly less than 125 M. board feet per section. This is equivalent to about 700 trees. On the basis of a treating cost of $4.00 per M. board feet, the cost of the project will be $3,000.

Entomological Considerations

The infested area is bounded on the north by a yellow pine stand fairly clean of beetle work, on the east by a lodgepole stand over a mile in width and by the Fort Klamath Valley, on the south by a narrow yellow pine belt not over two miles in width and free of heavy beetle work, and on the west by a varying stand of Douglas fir, western hemlock, mountain hemlock, Shasta fir, and white fir which extends to the summit of the Cascade Range. It appears evident, therefore, that although the area to be covered is small in extent, the success of the work will not be jeopardized by re-infestation from surrounding areas.

Administrative Considerations

Inasmuch as only national forest timber is involved in this project, its execution will be entirely a Forest Service responsibility, together with such Bureau of Entomology responsibility for the entomological features of the work as the Bureau cares to assume.

Basis of data

The description of this infestation and the cost estimates are based on field work done by me in November, 1926. Much of the infested timber was green and there was so much snow on the ground that thorough field work was physically impossible. I am convinced, however, that $3,000 is ample for the completion of the spring, 1927 work.

THE FORT ROCK PROJECT

Area and Ownership

The area included by this project is shown in red on the small portion of the map of the Deschutes National Forest which accompanies this report. The infestation is located in the Fort Rock district of the Deschutes National Forest and four miles northeast of Summit Stage Station on the Fort Rock-La Pine road.

The yellow pine infestation covers an area of about 8,000 acres, half of which is national forest area and most of the other half in the ownership of the Shevlin-Hixon Lumber Company.

Values to be Protected

No accurate timber estimates are available for this area. The rough information at hand indicates that there is an average yellow pine stand of 10 M. board feet per acre, or a total yellow pine stand of 80,000 M. board feet for the 8,000 acres included by the infestation. The timber is fair to good in quality and probably has a present market value of from $3.00 to $3.50 per M. board feet. Assuming that half of the pine is privately owned and the other half is national forest timber, the private owners and the Forest Service each have yellow pine values of from $120,000 to $140,000 within the boundaries of the infestation.

For several years prior to 1925, at least 200,000 acres of the yellow pine in the Fort Rock district, in the general region of the infested area under discussion, suffered severely from beetle attacks. In December, 1924, an unprecedented cold period of two weeks resulted in the death of a considerable percentage of the larvae of the western pine beetle. In 1925 and 1926 the beetle losses over most of the Fort Rock district were hardly more than one-third of what they had been in 1923 and 1924. For some reason, the yellow pine on the area now recommended for control operations has continued to suffer from the beetle epidemic

to almost the same degree in 1925 and 1926 as in 1923 and 1924.

This infestation represents the last large remnant of the tremendous area covered by the 1923 and 1924 epidemic. It is primarily for this reason that control work appears so desirable at this time. Whether or not, in the absence of control work, this infestation will gradually spread into the adjoining timber and enable the western pine beetle to resume its former epidemic status in timber now fairly free of beetle losses, is impossible to predict. However, it is the possibility of such spread which is the primary justification for the project.

Present and Past Infestation

The general character of the infestation and its relation to beetle conditions in the surrounding region have already been briefly discussed.

Within the boundaries of the present epidemic, the western pine beetle has killed no less than seven per cent of the yellow pine during the four-year period 1923-1926 inclusive. Individual forties can be picked out on which the beetle damage during these four years aggregate one-fourth of the stand.

In 1926, the beetle loss averaged 160 M. board feet per section or considerably more than two per cent of the stand. Of this total, 100 M. board feet represents the overwintering loss which will require treatment in the event of control operations in the spring of 1927. For the entire 8,000 acre area, this overwintering infested volume is estimated to be 1,250 M. board feet.

Estimated Cost

The total volume to be treated on the infested area is estimated to be 1,250 M. board feet.

The infested area is 50 miles from the base of supplies and labor. There is no water on the area and it will have to be hauled over 20 miles from Cabin Lake Ranger Station. The fire hazard is high on account of the ungrazed

grass and the occasional abundance of pine reproduction. For these reasons, it is not believed safe to plan on less than $4.50 per thousand board feet for the treatment of the timber.

On the basis of treating 1,250 M. board feet at a cost of $4.50 per thousand, the total cost of the project will be $5,625. Since the area is equally divided between the Forest Service and the private owners, the estimated cost is $2800 to the Forest Service and $2800 to the private owners. In order to provide for unforeseen emergencies, the Forest Service estimate is placed at $3,000.

Entomological Considerations

The infested area is bounded on the north and east by yellow pine stands fairly free of beetle attacks. On the south and west, extensive lodgepole stands occur within a few miles, but the lodgepole by no means entirely separates the infestation from other yellow pine on these two sides. For all practical purposes, the proposed project area may be said to be completely surrounded by yellow pine, but this adjoining yellow pine contains only infestation of endemic severity.

Administrative Considerations

The Shevlin-Hixon Lumber Company has never done any control work on any of its extensive holdings in central Oregon. However, this company is considerably interested in beetle protection and the proposed project has the approval of the local officials of the company. These officials are not inclined to formally present the project to the home office in Minneapolis for final approval until there is reasonable assurance that the Forest Service is in a position to finance its share of the work.

If the project is undertaken, it may be feasible to divide the infested area so that a Forest Service camp and a Shevlin-Hixon camp can cover the territory without the large amount of duplication of travel and additional expense which would be involved if each of the two agencies confined themselves to their own timber. The intermingled ownership makes such a cooperative arrangement highly desirable.

Basis of the Data

Additional field work is necessary to fix the exact boundaries of this project. This field work will be done in January or February with the help of the company. However, sufficient leeway has been made in the allotment estimate and the Shevlin-Hixon cost to take care of such changes and to provide for the margin of safety necessitated by the cruise of insect-infested timber made when many of the infested trees still had foliage of normal green color.

A. J. Jaenicke,
Forest Examiner.

3
Insect Control
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Maps to Accompany Report of January 3, 1927
on
"Proposed Insect Control Projects
for Spring of 1927 in District Six"

DESCHUTES NATIONAL FOREST

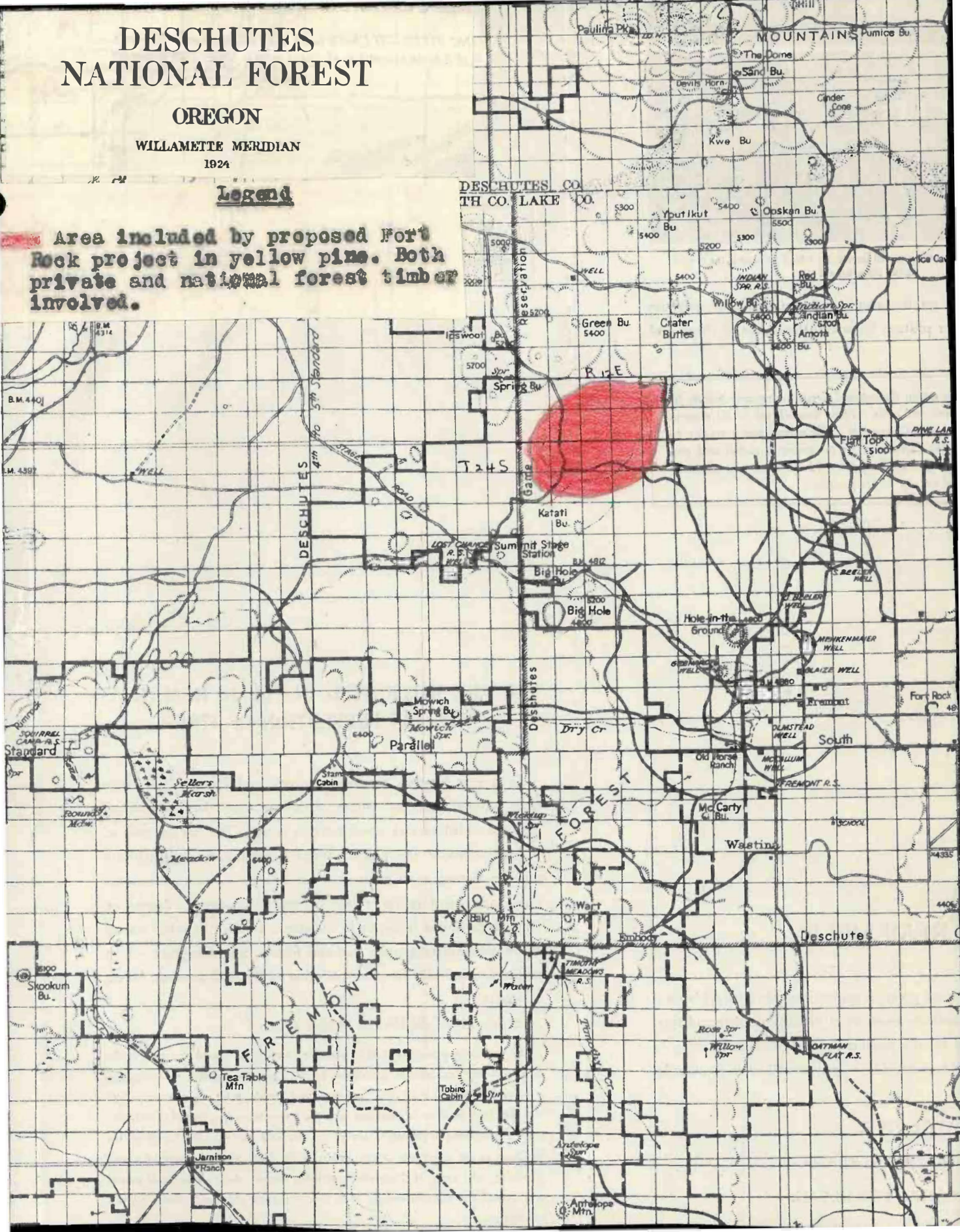
OREGON

WILLAMETTE MERIDIAN

1924

Legend

Area included by proposed Fort Rock project in yellow pine. Both private and national forest timber involved.



n the national forests, for which an annual fee is paid to the Government

serving also a very real economic purpose
r pasture for many thousands of sheep and

within the national forests are summer pasture for ep and cattle. These livestock are in the national m the Government. The owners pay a grazing fee the Government for the money it spends each year he forests from fire. The cowmen and sheepmen t rangers in fire protection.

REMEMBER

sts are great recreation grounds for the Nation.
mmense amounts of valuable timber and for-
d for the development of the country.
rests means loss to you as well as to thousands

WITH FIRE.

UTE THE STREAMS.

CAMP SITE CLEAN.

The Forest Service has spent considerable time and money putting up signs for the benefit of the public; please leave them unmutilated and undisturbed.

YOU ARE INTERESTED IN PUBLIC HEALTH AS WELL AS PREVENTION OF FIRES

Each year hunters, campers, tourists, and forest rangers contract typhoid fever or enteric disorders from the pollution of streams. Ordinary care will prevent them. The law requires it.

Regulations of the United States Department of Agriculture prohibit leaving in an exposed or insanitary condition on national forest lands camp refuse or débris of any description, or depositing on national forest lands, or in the streams, lakes, or other waters within or bordering upon national forests, any substance which pollutes or is likely to cause pollution of the said streams, lakes, or waters.

Section 114 of the laws of Oregon says:

Any person or persons who shall place or cause to be placed any part of the carcass of any dead animal, excrement, putrid, nauseous, noisome, decaying, deleterious or offensive substance into any river, creek, pond, road, street, alley, lane, lot, field, meadow or commons, or if the owner or owners thereof shall knowingly permit same to remain in any of the aforesaid places to the injury of the health or to the annoyance of any citizen of this State, shall be guilty of a misdemeanor; and every 24 hours after conviction therefor during which said person may permit the same to remain shall be deemed an additional offense against this section.